DOCUMENT RESUME

ED 367 672 TM 021 109

AUTHOR O'Connor, John C., III
TITLE Use of the MBTI as a Predictor of Successful Academic and Military Performance at the United States Coast Guard Academy. Report 10-93.
INSTITUTION Coast Guard Academy, New London, CT. Center for Advanced Studies.
PUB DATE Jul 93
NOTE 15p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Academic Achievement; Academic Persistence; Correlation; Higher Education; *Military Personnel; Performance; *Personality Measures; *Prediction; School Holding Power; *Student Characteristics; *Test Use
IDENTIFIERS Coast Guard; *Coast Guard Academy CT; *Myers Briggs Type Indicator

ABSTRACT

This study provides an analysis of a random sample of 100 cadets from the United States Coast Guard Academy class of 1993. Emphasis is placed on the cadets' academic achievements, their military performance, and their resignation status to determine whether the Myers-Briggs Type Indicator (MBTI) preferences can be used to predict success in these areas. A brief description is included about the incorporation of the MBTI into the Academy culture, with an attempt to build on the description of applicability to the United States Naval Academy made by Rousch (1989). It is hypothesized that individuals with Introversion (I), Intuition (N), Thinking (T), and Judgment (J) MBTI preferences are more suitable to academic and military success at the U.S. Coast Guard Academy than are individuals with other combinations of type preferences, and that low academic success at the Academy will adversely affect a cadet's military performance, which in turn could lead to resignation. The results of this study do indicate significant correlations among personality preferences, academic success, and military performance, as well as significant correlations between academic success, successful military performance, and persistence at the Academy. (Contains 7 references and 13 tables.) (Author)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 367 672

TM

Use of the MBTI as a Predictor of Successful Academic and Military Performance at the United States Coast Guard Academy

J. C. O'Connor, III

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

- [x] This document has been reproduced as received from the person or orgenization originating it.
- [ ] Minor changes have been made to improve reproduction quality.

- Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Report 10-93
July 1993

Center for Advanced Studies
United States Coast Guard Academy
New London CT, 06320

TM021109

REPORT DOCUMENTATION PAGE

Form Approved OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	July 1993	

4. TITLE AND SUBTITLE

Use of the MBTI as a Predictor of Successful Academic and Military Performance at the United States Coast Guard Academy

5. FUNDING NUMBERS

6. AUTHOR(S)

John C. O'Connor, III
U. S. Coast Guard Academy

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

Department of Professional Studies
U. S. Coast Guard Academy
15 Mohegan Ave
New London, CT 06320

8. PERFORMING ORGANIZATION

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION / AVAILABILITY STATEMENT

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*

This study provides an analysis of a random sample of 100 cadets from the United States Coast Guard Academy class of 1993.. Emphasis is placed on the cadet's academic achievements, their military performance, and their resignation status to determine whether the Myers-Briggs Type Indicator (MBTI) preferences can be used to predict success in these areas. A brief description is included about the incorporation of the (MBTI) into the Academy culture, with an attempt to build on the description of applicability to the United States Naval Academy made by Rousch (1989). This comparison is based on the similarities of both Academies admissions criteria, save Congressional appointments (which is not required by USCGA), in addition to the academic, military, and physical demands of each Academy as well as their four class system. It is hypothesized that individuals with Introversion (I), Intuition (N), Thinking (T), and Judgment (J) MBTI preferences are more suitable to academic and military success at the U.S. Coast Guard Academy than individuals with other type preferences, and that low academic success at the Academy will adversely affect a cadet's military performance, which in turn could lead to resignation. The results of this study do indicate significant correlations among personality preferences, academic success, and military performance, as well as significant correlations between academic success, successful military performance, and persistence at the Academy.

14. SUBJECT TERMS	15. NUMBER OF PAGES
U.S. Coast Guard Academy, Myers-Briggs Type Indicator (MBTI), Academic Performance, Military Performance, and Resignation	35
	16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. Z39-18
298-102

ABSTRACT

This study provides an analysis of a random sample of 100 cadets from the United States Coast Guard Academy class of 1993. Emphasis is placed on the cadet's academic achievements, their military performance, and their resignation status to determine whether the Myers-Briggs Type Indicator (MBTI) preferences can be used to predict success in these areas. A brief description is included about the incorporation of the (MBTI) into the Academy culture, with an attempt to build on the description of applicability to the United States Naval Academy made by Rousch (1989). This comparison is based on the similarities of both Academies' admissions criteria, save Congressional appointments (which is not required by USCGA), in addition to the academic, military, and physical demands of each Academy as well as their four class system. It is hypothesized that individuals with Introversion (I), Intuition (N), Thinking (T), and Judgment (J) MBTI preferences are more suitable to academic and military success at the U.S. Coast Guard Academy than individuals with other type preferences, and that low academic success at the Academy will adversely affect a cadet's military performance, which in turn could lead to resignation. The results of this study do indicate significant correlations among personality preferences, academic success, and military performance, as well as significant correlations between academic success, successful military performance, and persistence at the Academy.

INTRODUCTION

The United States Coast Guard Academy is a highly selective undergraduate institution, with only 9% of its applicants admitted in 1989. Academically the Academy is extremely challenging. On the average, a cadet will carry 18 credits hours, and no fewer than five classes per semester. Because of the highly competitive and strict admissions policy, the Coast Guard Academy has every reason to believe that every person who is admitted has the ability to do well academically. However, cadets also have specific military requirements and obligations which include, but are not limited to, the maintenance of stringent room, uniform, and grooming standards,watch standing responsibilities, military indoctrination,training sessions, military drill, and leadership responsibilities which increase in magnitude with each class year. In addition, each cadet is encouraged to affiliate themselves with at least one cadet activity group, and is required to participate in either intercollegiate athletics, an intercompany sport, or the Cadet Drum & Bugle Corps.

A cadet's day starts at 0600, with breakfast at 0620, military training at 0700, personnel inspection at 0740 and classes beginning at 0800. Mandatory "evening study hour" runs from 7:30 - 10:00 PM. Cadets do not receive "liberty" (the ability to leave the Academy grounds) Monday through Thursday. Liberty is granted on Friday from 3:40 PM until midnight, Saturday 12:00 PM until 1:00 AM Sunday, and Sundays and holidays from 7:30 AM until 6:00 - 10:00 PM, depending on class year.

The Academy regimen is not for everyone. In order for a cadet to be successful, one must perform well academically, militarily, and athletically. Success in one area does not guarantee overall success, nor does it make up for the lack of success in another. Since each cadet represents a substantial investment by the Coast Guard and the United States government, there is an interest in discovering ways to increase the likelihood of success for every cadet in each one of these areas.

Since all cadets are administered the (MBTI) during "Swab Summer" (1989) (the summer prior to the first semester of classes), there are data available which may be useful in identifying those individuals who may have the most trouble balancing these factors. Deficiencies in academic and/or military performance, may bring a cadet to a Suitability for Service Board, from which the cadet may find him/herself recommended for disenrollment. A method which would allow for the identification of those cadets at risk could make way for early intervention and the adoption of developmental and support initiatives.

The MBTI is made up of four separate bipolar indices, each comprising two mutually exclusive preferences. Extraversion (E) and introversion (I) on one index, sensing (S) and intuition (N) on a second index, thinking (T) and feeling (F) on a third, and judging (J) and perception (P) on a fourth index. Although every individual can use all eight preferences in varying degrees, the main objective of the MBTI is to identify the four basic preferences that reflect the individuals habitual choice between rival alternatives on each of the four indices. The four preferences, taken together, constitute an individuals MBTI type. There are, therefore, 16 possible combinations of four preferences (one each from the four indices). Table 1 is offered to assist in understanding the MBTI preferences discussed in the body of this paper.

A key to understanding this issue may lie in the MBTI and voluntary attrition study conducted by Roush (1989) at the United States Naval Academy. Roush found that midshipmen with the feeling (F) preference resigned at more than twice the rate of midshipmen with a preference for thinking (T) and in the class of 1991, (N)s departed at a significantly greater rate than did (S)s. Looking at combinations of preferences, (NF)s and (FP)s were more likely to resign, while (ST)s (class of 1991) and (TJ)s were least inclined to do so. Among types, those significantly more likely to resign included INFJ, INFP, ISFP, ESFJ (class of 1992), and ENFP. The only type significantly less likely to resign was ESTJ.

TABLE 1
MYERS-BRIGGS TYPE INDICATOR
(MBTI) PREFERENCES

EXTRAVERT (E) ---------- **INTROVERT (I)**		
	Interest flows mainly to...	
The outer world of actions, objects and persons.		The inner world of concepts and ideas.
SENSING (S) ---------- **INTUITION (N)**		
	Prefer to perceive...	
The immediate, real,practical facts of experience and life.		The possibilities, relationships and meanings of experiences.
THINKING (T) ---------- **FEELING (F)**		
	Prefer to make judgments or decisions...	
Objectively, impersonally considering causes of events and where decisions may lead.		Subjectively and personally, weighing values of choices and how they matter to others.
JUDGMENT (J) ---------- **PERCEPTION (P)**		
	Prefer mostly to live...	
In a decisive, planned and orderly way, aiming to regulate and control events		In a spontaneous, flexible way, aiming to understand life and adapt to it.

* Every person will favor one of each of the four sets of preferences, resulting in a four letter personality type. There are 16 possible types (letter combinations).

TABLE 2
16 POSSIBLE TYPE COMBINATIONS

ISTJ	**ISFJ**	**INFJ**	**INTJ**
I Depth of concentration	I Depth of concentration	I Depth of concentration	I Depth of concentration
S Reliance on facts	S Reliance on facts	N Grasp of possibilities	N Grasp of possibilities
T Logic and analysis	F Warmth and sympathy	F Warmth and sympathy	T Logic and analysis
J Organization	J Organization	J Organization	J Organization
ISTP	**ISFP**	**INFP**	**INTP**
I Depth of concentration	I Depth of concentration	I Depth of concentration	I Depth of conversation
S Reliance on facts	S Reliance on facts	N Grasp of possibilities	N Grasp of possibilities
T Logic and analysis	F Warmth and sympathy	F Warmth and sympathy	T Logic and analysis
P Adaptability	P Adaptability	P Adaptability	P Adaptability
ESTP	**ESFP**	**ENFP**	**ENTP**
E Breadth of interests	E Breadth of interests	E Breadth of interests	E Breadth of interests
S Reliance on facts	S Reliance on facts	N Grasp of possibilities	N Grasp of possibilities
T Logic and analysis	F Warmth and sympathy	F Warmth and sympathy	T Logic and analysis
P Adaptability	P Adaptability	P Adaptability	P Adaptability
ESTJ	**ESFJ**	**ENFJ**	**ENTJ**
E Breath of interests	E Breadth of interests	E Breadth of interests	E Breadth of interests
S Reliance on facts	S Reliance on facts	N Grasp of possibilities	N Grasp of possibilities
T Logic and analysis	F Warmth and sympathy	F Warmth and sympathy	T Logic and analysis
J Organized	J Organized	J Organized	J Organized

Myers Isabel B., and M. H. McCaulley. 1985. Manual: A Guide to the Development and Use Of the Myers-Briggs Type Indicator.

Barber's (1990) study identifies that of the 16 possible MBTI types, "successful senior leaders", i.e., students at the U.S. Army War College (USAWC) 53.5% of the officers are ISTJ or ESTJ. In fact, 71.1% of all the students looked at in his study fell into one of the "four corners" (i.e., ISTJ, ESTJ, INTJ, and ENTJ). By contrast, only 31.5% of a comparison group who had not been selected to attend the Army War College, fell into those four categories. What the four corners have in common are the Thinking and Judging preferences. As a group, these senior military officers are predominately thinkers and judgers and more likely to be sensors in comparison with the general population group.

Roush concludes that, in this environment of frequent daily interaction with upperclass midshipmen, the [underclass] who are introverts (I) are forced to live "out of type" on a regular basis. Likewise, the N, who likes variety and innovation, is forced into a regimented routine. Since the nature of the first year as a midshipmen deliberately places individuals under a lot of stress and often verbal disparagement, the (F)s may not be comfortable. "Finally, since the Naval Academy is a highly structured institution in which virtually every waking moment of the midshipman's life is planned, perceiving types should find the environment less attractive than judging types. To recapitulate, type theory suggests that the social environment at the Naval Academy would be more aversive to young people whose preference are in the introverted, intuitive, feeling, and perceiving domains." (Roush, 1989:76)

Roush further suggests that the student whose grades are good, has more time available to prepare for professional (military) related requirements and activities. "Consequently he or she is more likely to be praised by the upperclass [cadets]." (Roush, 1989:78) Praise from upperclass tends to be a significant motivator for first-year cadets as they begin to feel some degree of accomplishment and acceptance into the corps. "Failure to perform adequately in the professional realm invites prompt attention from upperclass [cadets] and may well result in increased stress and lowered self-esteem of the [cadet]. Thus, students achieving academic success should experience a lower rate of stress, higher self-esteem and [greater success with military performance] compared with those who experience significant academic difficulty." (Roush, 1989:78)

Since a U. S. Naval Academy class is approximately 4 1/2 times the size of a U. S. Coast Guard Academy class, my data base was more limited with respect to viewing the entire range of 16 personality types (the combination of all four preferences). The percentage of Coast Guard cadets falling into any one of the 16 types, ranges from 2-14%. Thus, this study will focus on individual preference scales versus an entire type.

As outlined in Roush (1989), this study will examine whether military performance at the United States Coast Guard Academy, is influenced by decreased stress and higher self-esteem provided by a cadet's academic success at the Academy. This, according to Roush, should lead to a lower rate of voluntary resignation compared with those who experience significant academic difficulty.

Where Roush (1989) looked at just the first year at the U.S. Naval Academy and voluntary resignation, this study will address 3 1/2 years at the U. S. Coast Guard Academy, and includes both voluntary and involuntary resignations. This study, like Roush (1989), also attempts to determine whether or not certain MBTI preferences are found more frequently among those who perform well academically or militarily. As outlined by Myers and McCaulley (1985), type theory indicates that although introverts (I) may be forced to live "out of type" in the militarily interactive aspect of the Academy, (I)s should have some academic advantage over extraverts (E), in that the a number of academic tasks are more in line with the preference orientation of introverts. At institutions such as the Coast Guard Academy where there is a major emphasis on mathematics and engineering, those with a intuition (N) preference have an advantage over those with a preference for sensing (S). (I)s and (N)s, however, may find themselves comparatively disadvantaged in the non-academic environment.

Type theory also suggests that those individuals with a preference for thinking (T) are likely to perform better academically, particularly in an engineering curriculum, with their "logical, analytical, cause-and-effect approach" than those individuals with a feeling (F) preference. Given the demanding academic, military, training, and athletic schedule of the Academy, cadets with a preference for judging (J) are more likely to manage their time in ways that allow them to meet all their requirements more efficiently. For these reasons, (T)s and or (J)s may have an advantage in both the academic and non-academic areas of the Coast Guard Academy. Myers and McCaulley (1985) describes (IN)s as "introspective and scholarly. They are interested in knowledge for its own sake, as well as ideas, theory, and depth of understanding." (p.37) (TJ)s are described as the "logical decision makers" who are "tough minded, executive, analytical, and instrumental leaders." (p.36)

My hypothesis is that individuals with I, N, T, and J MBTI preferences are more suitable to academic and military success at the U. S. Coast Guard Academy than others, and that low academic success at the Academy will adversely affect a cadet's military performance which, in turn, could lead to resignation.

I will be pursuing this hypothesis in the framework of Parsons' model of the three different systems of action: personality, society, and culture. (Alexander) I am aware that Parsons is often criticized for not always setting up testable propositions. I am, however, specifying a testable proposition in this study, using the general framework of Parsons' model as a guide. Personality, for the purposes of this study will be the individual personality preferences outlined by the MBTI. With culture held reasonably constant with regard to the specific regulations, norms, and values which are the Coast Guard Academy, I will focus on the idea of "goodness of fit" addressed by Roush (1989), by addressing the association between personality

and the organizational dimension of the social system. That is, to focus on the Academy's method of goal attainment in identifying who will be given leadership roles within the Academy structure and ultimately allowed to graduate as a commissioned officers in the United States Coast Guard.

METHOD

The sample. The subjects were 100 individual cadets in the class of 1993 who were randomly selected from the class size of 289 (Table 3). At the time of this study, the class of 1993 had completed seven academic semesters. The available data is valid through the Fall semester of 1992.

TABLE 3
Make-up of the Class of 1993
and the Random Sample of the Class

	Males	Females	Minorities
Class of 1993	249	40	32
Random Sample	84	16	12

Note: 10 cadets who reverted into the class of 1993 from the class of 1992, and 4 Foreign National cadets are not included in the population.

Measures. Using Pearson's correlation analysis and multiple regression analysis, I looked at a cadet's ability to be "successful" at the Academy. Resignation, Freshman Spring 1990 Term Grade Point Average, Senior Fall 1992 Cumulative Grade Point Average, Freshman Spring 1990 Military Precedence List, and Senior Fall 1992 Military Precedence are the dependent variables. The independent variables are: gender, verbal SAT, math SAT or verbal ACT and math ACT, science ACT, high school standardized class rank, high school leadership performance, Swab Summer physical fitness exam score, and personality type outlined by the Myers Briggs Type Indicator (Extraversion/Introversion, Sensing/Intuition, Thinking/Feeling, Judgment/Perception). Ethnicity was not used as a variable in that there were no African Americans in the class of 1993 and only 7 Asians and 5 Hispanics present in the random sample.

In this study, "resignation" was measured by identifying those cadets who either left the Academy voluntarily or that have been involuntarily processed out by the Administration. Academic success at the Academy was operationalized by using a cadet's Freshman Spring (1990) Term Grade Point Average (TGPA) and Senior Fall (1992) Cumulative Grade Point Average (CGPA), both averages are computed on a 4.0 scale. The (TGPA) is determined by multiplying the credit hours for each course by the quality points of the assigned grade, adding together the resulting numbers for all courses taken during the term, and then dividing by the total number of credit hours carried during that semester. The (CGPA) is based on all course work completed since the first date of attendance at the Academy. The cumulative grade point average is used to determine academic class rank.

Military success was established by utilizing the Freshman Spring (1990) and Senior Fall (1992) Military Precedence List (MPL). The MPL is a lineal list of all cadets in a class group in descending order of achievement in the nonacademic programs at the Academy (less Physical Education). The (MPL) evaluates every cadet's performance in the cadet regiment, their aptitude for developing a reputable military character, their ability to adhere to the rules of conduct for cadets and their general contribution to the Academy environment. (Regulations for the Corps of Cadets, Article 7-2-01)

The MPL serves to identify high and low performers and provide cadets feedback on their relative status among peers. The MPL also enables the Academy to better assess the personal strengths and weaknesses of cadets and to identify specific cadet development needs. Cadets who consistently rank high on MPL, or any subset thereof, may expect to be assigned important regimental duties in their Second and First Class year. (Regulations for the Corps of Cadets, Articles 7-2-01)

The MPL is based on a point system (1000 points are possible for each semester and each summer term). Each year's MPL counts evenly in the cumulative MPL. However, the summer program is not weighted equally to an academic term because a smaller span of time is involved and MPL components vary during each summer. Table 4 indicates the percentage weight for each term in the cumulative MPL (CMPL).

TABLE 4
Percentage Weights of Each Term in the Cumulative Military Precedence List

	TERM	TOTAL
4/c summer	1.67	1.66
Each 4/c fall/spring	11.67	23.34
3/c summer	5.00	5.00
Each 3/c fall/spring	10.00	20.00
2/c summer	5.00	5.00
Each 2/C fall/spring	10.00	20.00
1/c summer	5.00	5.00
Each 1/c fall/spring	10.00	20.00
TOTAL		100%

MPL in the fall and spring term is computed as follows:
(1) 30% Performance Reports
(2) 30% Company Officer Evaluation (COE)
(3) 20% Conduct
(4) 20% Adaptive Skills*

Summer term MPL is computed as follows:
(1) 40% Performance Reports
(2) 40% Company Officer Evaluation (COE)
(3) 20% Conduct

(Regulations for the Corps of Cadets, Articles 7-2-02)

Note: * The computation of MPL in the Fall Semester of 1992 is slightly different than previous semesters in that adaptive skills (or peer evaluations) are no longer a factor of the MPL.

Gender was obtained from personal disclosure on admissions applications. Academic performance in high school was determined by using the College Board Scholastic Aptitude Scores (S.A.T.), Verbal and Math or the American College Testing Assessment Scores (A.C.T.), English, Math, and Natural Science, submitted on Academy admission forms.

High school class rank was normalized by converting the rank in class to a standard score using the following formula:

Double the applicant's rank-in class and subtract one. Divide this number by twice the applicants size-of-class. The resulting quotient is the applicant percentile rank. Find the standard score ranging from 425 - 800 from the transformation table (Table5).

$$\frac{2 \times \text{H.S. Rank} - 1}{2 \times \text{Graduating Class Size}} = \frac{\quad}{\quad}$$

i.e. (Class rank of 2 in a class of 100):

$$\frac{2 \times 2 - 1}{2 \times 100} = \frac{3}{200} = .015 = \text{Standard Score } 725$$

Leadership performance in high school was operationalized by awarding one point per activity to cadets who were: Gold Award, Eagle Scout, Publication Editor, Camp Counselor, Sporting team captain, National Honor Society, High School Class, or Club President/Vice President.

The Swab Summer Physical Fitness Exam is computed on a 500 point scale, measuring five separate factors, pull-ups, sit-ups, standing broad jump, 300 yard shuttle run, and the 1 1/2 mile run. Each factor is worth a maximum of 100 points.

Personality type was operationalized using the Myers-Briggs Type Indicator (MBTI), Form F, which was given to the entire class during their Swab Summer. Form F of the MBTI comprises 166 scorable items that purport to identify the psychological preferences of the individual who responds to them. Of the 166 scorable items on the MBTI form F, 115 involve choosing a phrase that describes how one usually feels or acts. The remaining 51 items require choosing, from pairs of words, the one with the most appealing meaning.

TABLE 5
TRANSFORMATION OF PERCENTILE RANR IN HIGH SCHOOL CLASS TO STANDARD SCORES

800	775	750	725	700	675	650	625
.0000 .0020	.0021- .0050	.0051- .0100	.0101- .0200	.0201- .0400	.0401- .0600	.0601- .0900	.0901- .1200
600	**575**	**550**	**525**	**500**	**475**	**450**	**425**
.1201- .1600	.1601- .2200	.2201- .3000	.3001- .3800	.3801- .5000	.5001- .7500	.7501- .9000	.9001- 1.0000

Note: This table has been used by the Coast Guard Academy Admissions Office for several years, and is similar to those used by West Point and Air Force.

RESULTS

In looking at the results of this study, it is helpful to look at predictors as having a sequence. For example, if grade point average is a predictor of military performance, and military performance as well as grade point average can be predictors of resignation, then it may prove to be fruitful to understand the predictors of each dependent variable and which if any they share in common. Table 6 outlines the correlations for the dependent variables: Resignation Status, Freshman Spring Military Precedence List, Senior Fall Military Precedence List, the Senior Fall Cumulative Grade Point Average, with the various independent variables outlined in the measures section of this paper.

Looking at the Senior Fall (1992) Cumulative Grade Point Average (SFCGPA) as our first dependent variable in the sequence, we note in Tables 6 that (SFCGPA) has a moderate positive correlation, significant at the .001 level with Math SAT, a low positive correlation, significant at the .05 level with High School Rank, and a low negative correlation, at the .05 level with Judgment. As hypothesized, (SFCGPA) also has a low positive correlation, significant at the .05 level with the Senior Fall Military Precedence List (SFMPL) and a moderate negative correlation, significant to the .001 level with Resignation Status. This suggests a substantial relationship between a low (SFCGPA) and Resigning. As expected, the Freshman Spring Term Grade Point Average showed a high correlation, significant at the .001 level with (SFCGPA). In that the freshman GPA (FSTGPA) variable is a factor of the (SFCGPA) and that it is missing data for seven cadets, for which there is data available in the (SFCGPA), this factor will no longer be referred to in the results of this study.

Correlation of the MBTI preferences in Table 7, revealed a low to moderate correlation was noted between Sensing/Intuition, Thinking/Feeling, and Judgment/Perception, all of these correlations were significant to the .05 - .000 level. Extraversion/Introversion is the only personality preference variable that does not correlate significantly with any other. This resulted in the design of separate multiple regression models for each MBTI preference which showed a significant correlation with any of the dependent variables. Tables 5 and 6 both show the results of a multiple regression analysis of (SFCGPA) on Math SAT, High School Rank, and Senior Fall Military Precedence List. All variables remained significant at their original levels when the others were controlled. Table 8 also addressed the Judgment/Perception variable which proved not to be significant.

Table 9 addressed the Sensing/Intuition variable which revealed a weak positive association, significant at the .05 level where it hadn't shown a correlation in Table 6. This association supports the hypothesis that Intuition (N) preference is important to academic success in institutions such as the Coast Guard Academy which has a major emphasis on mathematics and engineering. This (N) association was discovered when an attempt was made to place all of the MBTI preference variables into a single multiple regression model. The results of this regression revealed a positive association with Sensing/Intuition, (N), and the disappearance of the Judgment (J) association noted in the correlation matrix.

TABLE 6
Correlation of Resignation Status, Freshman Spring Military Precedence List (FSMPL), Senior Fall Military Precedence List (SFMPL), Senior Fall Cumulative Grade Point Average (SFCGPA) and Various Independent Variables

	Resignation Status	(FSMPL)	(SFMPL)	(SFCGPA)
Resignation Status	1.00	-.20	-.23	-.50***
(FSMPL)	-.20	1.00	.63***	.17
(SFMPL)	-.23	.63***	1.00	.29*
(SFCGPA)	-.50***	.17	.29*	1.00
Gender	.02	.02	-.05	-.03
Verbal SAT	-.13	.11	.01	.20
Math SAT	-.27**	-.04	-.07	.47***
Verbal ACT	.07	.11	.13	.18
Math ACT	-.20	-.02	-.01	.26*
Natural Science ACT	.10	-.06	.04	.10
High School Rank	-.15	.15	.12	.24*
High School Leadership	.11	-.20	-.08	-.11
Swab Summer Physical Fitness Exam	.13	.10	.42***	.09
Freshman Spring Term Grade Point Average (FSTGPA)	-.25*	.25*	.29*	.76***
Extraversion/ Introversion	-.19	.08	-.07	.10
Sensing/Intuition	.23*	.09	-.21	-.09
Thinking/Feeling	-.09	.15	.08	-.09
Judgement/ Perception	.07	-.19	-.29*	-.22*

Notes: Extraversion/Introversion: Positive value indicates Introversion
Sensing/Intuition: Positive value indicates Intuition
Thinking/Feeling: Positive value indicates Feeling
Judgment/Perception: Positive value indicates Perception
* indicates significance at the .05 level.
** indicates significance at the .01 level.
*** indicates significance at the .001 level.

TABLE 7
Correlation Between Sensing/Intuition Thinking/Feeling, and Judgment/Perception

	S/N	T/F	J/P
Sensing/Intuition	1.00***	.35***	.44***
Thinking/Feeling	.35***	1.00***	.23*
Judgment/Perception	.44***	.23*	1.00***

Notes: Sensing/Intuition: Positive value indicates Intuition
Thinking/Feeling: Positive value indicates Feeling
Judgment/Perception: Positive value indicates Perception
* indicates significance at the .05 level.
** indicates significance at the .01 level.
*** indicates significance at the .001 level.

TABLE 8
Regression of Senior Fall (1992) Cumulative Grade Point Average on Various Independent Variables

	Beta
Judgment/Perception	.03
High School Rank	.26*
Math SAT	.53***
Senior Fall (1992) Military Precedence List	.26*
R square	.41
N	58

Notes: Judgment/Perception: Positive value equals Perception
* indicates significance at the .05 level.
** indicates significance at the .01 level.
*** indicates significance at the .001 level

TABLE 9
Regression of Senior Fall (1992) Cumulative Grade Point Average on Various Independent Variables

	Beta
Sensing/Intuition	.19*
High School Rank	.26*
Math SAT	.53***
Senior Fall (1992) Military Precedence List	.29**
R square	.44
N	58

Notes: Sensing/Intuition: Positive value equals Intuition
* indicates significance at the .05 level.
** indicates significance at the .01 level.
*** indicates significance at the .001 level

The next dependent variable in the sequence is the Senior Fall (1992) Military Precedence List (SFMPL). Table 6 shows a low positive correlation, significant at the .05 level with (SFCGPA), a moderate positive correlation, significant at the .001 level with the Swab Summer Physical Fitness Exam, and a low negative correlation, significant at the .05 level with Judgment/Perception, indicating a correlation with the Judgment preference. Tables 10 and 11 both show the results of a multiple regression analysis of Senior Fall Military Precedence List on (SFCGPA), Swab Summer Physical Fitness Exam, Judgment/Perception (Table 10), and Sensing/Intuition (Table 11). All variables remained significant at their original levels when the other variables were controlled. Again the Sensing/Intuition variable was not found to be statistically significant on Table 6, however, a negative association was discovered surprisingly, when an attempt was made to place all of the MBTI preference variables into this multiple regression model. Table 11 indicates the same resulting association when the Sensing/Intuition variable is used as the only personality variable in this model. The significant association of (SFCGPA) to (SFMPL) was expected based on the results of the multiple regression for (SFCGPA). However, The Swab Summer Physical Fitness Exam is a surprise at .38 and a significance at the .001 level.

TABLE 10
Regression of Senior Fall (1992) Military Precedence List on Various Independent Variables

	Beta
Judgment/Perception	-.23*
Senior Fall (1992) Cumulative Grade Point Average	.19*
Swab Summer Physical Fitness Exam	.37***
R square	.28
N	63

Notes: Judgment/Perception: Positive value indicates Perception
* indicates significance at the .05 level.
** indicates significance at the .01 level.
*** indicates significance at the .001 level.

TABLE 11
Regression of Senior Fall (1992) Military Precedence List on Various Independent Variables

	Beta
Sensing/Intuition	-.25*
Senior Fall (1992) Cumulative Grade Point Average	.25*
Swab Summer Physical Fitness Exam	.38***
R square	.29
N	63

Notes: Sensing/Intuition: Positive value indicates Intuition
* indicates significance at the .05 level.
** indicates significance at the .01 level.
*** indicates significance at the .001 level

The third and final dependent variable in the sequence is Resignation Status. Table 6 describes a moderate negative correlation, significant at the .001 level with (SFCGPA), indicating that the lower the GPA the greater the possibility of resignation. A low correlation, significant at the .01 level is also noted with Math SAT, which, as shown in Tables 8 and 9 has a substantial relationship to (SFCGPA). Table 6 also outlines Sensing/Intuition as having a low positive correlation, significant at the .05 level. Table 12 shows the results of a multiple regression analysis of Resignation Status on Sensing/Intuition, (SFCGPA), (FSMPL), and Math SAT. The only variable that remained significantly associated after controlling for the others in this model is (SFCGPA). Even the association of (SFCGPA) in this regression model is reduced from a correlation of -.50 with a significance at the .001 level, to -.27 with a significance at the .05 level. This regression therefore, in addition to indicating that Math SAT and Intuition (N) as variables with moderate and low correlations with (SFCGPA) respectively, as indicated on Tables 8 and 9, are in fact working through (SFCGPA).

TABLE 12
Regression of Resignation on Various Independent Variables

	Beta
Sensing/Intuition	.06
Senior Fall (1992) Cumulative Grade Point Average	-.27*
Freshman Spring (1990) Military Performance List	-.12
Math SAT	-.14
R square .15	
N 72	

Notes: Sensing/Intuition: Positive value indicates Intuition
* indicates significance at the .05 level.
** indicates significance at the .01 level.
*** indicates significance at the .001 level

Understanding that there are a number of variables at work with regard to Resignation Status, many of which are not attempted to be addressed by this study, Table 13 outlines the means of t-Tests indicated for resignation or persistence when looking at Resignation Status and Various Independent Variables.

As expected, based on the correlation and multiple regression analysis outlined in previous tables, Table 13 describes the difference in the means for Math SAT and Senior Fall Cumulative Grade Point Average as being significant. Also significant are the Extraversion/Introversion and the Sensing/Intuition variables. The difference in means for these two variables show that cadets with an Extraversion preference and cadets with an Intuition preference, resign at a significantly higher rate than those with a preference toward Introversion and Sensing. Where this finding supports a significant correlation in the same direction for Intuition on Table 6, this is the only significant association of any type for Extraversion/Introversion in this study.

TABLE 13
t-Test on Resignation Status and Various Independent Variables (Means) As Compared to the Sample Mean

Mean Value:	Sample	Resigned	Persist	
Math SAT	620.5	593.1	634..3	Sig
Math ACT	27.0	26.3	27.5	
Senior Fall Cumulative Grade Point Average	268.4	224.3	285.7	Sig*
High School Rank	663.6	651.4	670.3	
Extraversion/ Introversion		-8.2	2.5	Sig
Sensing/ Intui~ion		10.0	-4.4	Sig
Thinking/ Feeling		-8.5	-4.3	
Judgment/ Perception		6.6	2.8	

Note: Extraversion/Introversion: Positive value equals Introversion
Sensing/Intuition: Positive value equals Intuition
Thinking/Feeling: Positive value equals Feeling
Judgment/Perception: Positive value equals Perception
Sig indicates significance at the .05 level.
Sig* indicates significance at the .000 level.

DISCUSSION

The United States Coast Guard Academy, as does many other institutions and organizations, has a very distinct culture. This culture is the result of a number of internal and external influences. One such influence is that of the American public which, as contributors to this government funded institution, has high expectations and demands for the Academy's posture in society. This serves to dictate the expected quality of its graduates, and outlines the contributions that the graduate is expected to make to the organization and the country that it serves to support. Other influences on the development and manifestation of this culture are the academic emphasis of the institution, the efforts of past and current Academy administrations, active Alumni, and the rich history of the Coast Guard itself, which in the form of customs and traditions are passed on from generation to generation.

The literature tells us that every new member of this institution brings to it his/her own individual personality. The interaction of these personalities serves to shape and form a personality for the society which is embodied in the Academy. Barber (1990), as noted earlier, speaks about the personality types which are overwhelmingly observed in "successful" senior military officers at the U.S. Army War College (USAWC). Barber states that 53.5% of these officers are ISTJ and ESTJ. In fact Barber reports that 71.1 of the students are in the "four corners" (i.e., ISTJ, ESTJ, INTJ, and ENTJ). These types have also been shown to exist at the same disproportionate levels among the other military services including the Coast Guard. In that these individuals are largely a product of the Coast Guard Academy and are now in positions of senior management within the Academy administration and the Coast Guard at large, it is clear to see how these individuals are in a position to further influence the norms and values of the Academy in this same direction. New cadets entering the Academy are therefore forced to deal with the issue of "goodness of fit" outlined in Roush (1989).

As hypothesized, this study shows that Introversion (I), Intuition (N), and Judgment (J) are significantly associated with, and are predictors of, successful academic and military performance at the United States Coast Guard Academy. In addition, this study shows academic success as a predictor of both military success and persistence. Neither the Thinking (T) preference, hypothesized as being a predictor of success nor the Feeling (F) preference were found to have any statistical significance in this study.

Based on the findings of this study, the average cadet entering the Academy has a mean Math SAT of 620.5, a mean standardized High School Rank of 663.6, a preference toward Extroversion (E), Intuition (N), Thinking (T), and Perception (P). In contrast, the person most likely to succeed academically at the United States Coast Guard Academy has a mean Math SAT score of 634.3 (Tables 8, 9 and 13), a mean standardized High School Rank of 670.3 (Tables 8, 9 and 13), a preference toward Introversion (I) as outlined on Table 13 by a higher rate of persistence, and (as predicted by type theory) as having an academic advantage over Extraverts (E). This study further finds that this individual would have a preference toward Intuition (N) (Table 9). Intuition (N) is predicted by type theory to be more successful at institutions such as the Coast Guard Academy where there is a major emphasis on mathematics and engineering than those with a preference for Sensing (S).

This study finds that the person more likely to succeed militarily at the Coast Guard Academy would have a higher Cumulative Grade Point Average and a preference toward Sensing (S) over Intuition (N) (Tables 11 and 13). Although more successful academically, the finding in Table 13, that (N)s resign at a higher rate than (S)s is also predicted by type theory, in that (N)s who like variety and innovation, are in the Academy culture, forced into a regimented routine. The person more likely to succeed militarily will also have a preference to Judgment (J). This finding is also predicted by type theory, in that cadets with a preference for judging (J), are more likely to manage their time in ways that allow them to meet all of their academic and military requirements more efficiently.

The most highly associated and significant predictor of military success at the United States Coast Guard Academy as indicated by this study is the Swab Summer Physical Fitness Exam. This finding brings to light in a graphic way, the emphasis that is placed on the ability of one to excel in the area of physical fitness within the Academy culture. In reviewing the criteria used to establish the Military Precedence List (MPL), it is clear that the only way this factor can manifest itself, is through the purely subjective cadet peer adaptability ratings and through Company Officer evaluations.

IMPLICATIONS

It is recognizing that college and university admissions departments across the country are always trying to develop, modify and perfect reliable models which can predict to academic success at their institutions. The major finding of this study is that once the admissions process is completed and the student is enrolled in the institution, personality preferences may be able to predict successful military/leadership performance in addition to academics, for those institutions interested in this dimension.

Being aware of the concerns surrounding the potential misuse of MBTI type as a discriminator in the admissions process, institutions must also look at the potential values of the MBTI. That is, if the MBTI were administered to an incoming class, shortly following their arrival at the institution, this tool may be used to assist academic advisors and student counselors, in helping students to adapt to the social and academic "personalities" of the institution. The knowledge of MBTI type may be the key to focusing on the development of study skills, time, and stress management, and may contribute to the success of individuals who would otherwise be lost.

Greater knowledge of the MBTI and its implications in the Academy environment can assist the cadet in adjusting to the demands of Academy life in both the academic and non-academic arenas. The Coast Guard Academy has already offered the MBTI instrument to academic advisors, so that they may better assist cadets in the academic process. The MBTI instrument and associated training should also be offered the Company Officers for further integration into the "social" or non-academic realm. These actions may all prove fruitful in protecting the government's investment in these talented individuals and ultimately optimize the potential of these future leaders.

In future research on academic and military performance issues, it is suggested that technical and non-technical academic majors are looked at as separate independent variables. Another area of interest may be to study the highly significant correlations observed between the Sensing/Intuition, Thinking/Feeling, and Judgment/Perception factors of the MBTI.

References

Alexander, Jeffery C. 1987. Twenty Lectures, 39-47. New York, NY: Columbia University Press.

Barber, Herbert F. 1990. "Some Personality Characteristics of Senior Military Officers." Measures of Leadership, 441-448. West Orange, NJ: Leadership Library of America.

McCaulley, M. H. 1985. The Selection Ratio Type Table: A research strategy for comparing type distributions. Journal of Psychological Type, 9:46-56

Myers Isabel B., and M. H. McCaulley. 1985. Manual: A Guide to the Development and Use of the Myers-Briggs Type Indicator. Palo Alto, CA: Consulting Psychologists Press.

Roush, Paul E. 1989. "MBTI Type and Voluntary Attrition at the United States Naval Academy." Journal of Psychological Type, 18:72-79.

Roush, Paul E., and L. Atwater. 1992. "Using the MBTI to Understand Transformational Leadership and Self-Perception Accuracy." Military Psychology, 4(1):17-34.

United States Coast Guard Academy. 1990. Regulations for the Corps of Cadets, Superintendent Instruction M5215.2B.